

# Business model of a public intermediary: a case study of China Science & Technology Service Center

C. F. Lang<sup>1</sup>, Y. Y. Shou<sup>2</sup>

<sup>1</sup>School of Management, Zhejiang University, Hangzhou, China

<sup>2</sup>School of Management, Zhejiang University, Hangzhou, China  
(yshou@zju.edu.cn)

**Abstract-** The aim of this paper is to describe the public intermediary's activities in innovation processes through a case study of China Science & Technology Service Center (CSTSC) for small and medium-sized enterprises (SMEs). The paper proposes a basic business model analytic framework for public intermediaries with four main components including core value, financial aspects, infrastructure management and customer interface. CSTSC does well in customer relationship and value configuration and has a good business model to support high-quality and high-efficiency services for SMEs..

**Keywords** - Public intermediary, small and medium-sized enterprise, business model, service intermediary

## I. INTRODUCTION

Intermediaries have become an important part of the cluster innovation system proposed by Porter(2000) [12]. To benefit the industrial development, the intermediary contributes to the reduction of search costs and other transaction costs of enterprises. Intermediaries can be classified into four categories according to the various function: technology intermediary, financial intermediary, knowledge intermediary, talents intermediary, and alliance intermediary (Chen, 2012) [3].

Since China's reform and opening up, intermediary service organizations in China have greatly developed. For example, by 2003, there are more than 60,000 intermediary service organizations of science and technology in large and medium-sized cities in China. Although the intermediary organizations have achieved great development, in general they are still in nascent stages and serve as weak links in the national innovation system. Therefore, the Chinese government has invested greatly in intermediary organizations in order to provide services and information for enterprises (Malecki, 2009).[6] Under this background, many public organizations in China also serve as intermediaries and play a significant role to support enterprises, especially SMEs in R&D and innovation activities. However, research about public intermediaries is nearly blank and lack of systematical research results at present. So this paper presents a case study of a public intermediary organization about its role and how it creates benefits in

Chinese innovation system.

This research analyses in detail the activities and performance results of China Science & Technology Service Center for SMEs over the past few years. The goal of this study is to describe the activities in general and to analyze its business model, aiming to provide a general business model analytic framework for other public intermediaries.

## II. LITERATURE REVIEW

A set of actors are called as 'intermediaries' who perform a variety of tasks within the innovation process (Howells, 2006) [5] The different roles that these actors play within the innovation process have been variously described, such as third parties (Mantel and Rosegger, 1987) [7], intermediary firms (Stankiewicz, 1995) [14], bridges (Bessant and Rush, 1995 [2]; Zaheer and McEvily, 1999 [16]), brokers (Hargadon and Sutton, 1997 [4]; Provan and Human, 1999 [13]), and information intermediaries (Popp, 2000) [11]. The scholar mentioned above devotes a lot to conduct a study on the conception and function of intermediaries from different angles in various methods. Over the last 20 years, a lot of research emerged about the role of intermediary from a number of different sources and research. Reviewing and synthesizing the literature, Howells(2006) [5] summarized four main research interests---- Literature on technology transfer and diffusion, research about innovation on the role and activities of intermediaries, the systems of innovation literature, researching into service organization. All of these literatures reflected the value and function of the intermediary. Unless systematically analyzing the theory, there is no clear and all-accepted definition about intermediary eventually.

According to the theoretical literature, service intermediaries, such as technology intermediary, knowledge intermediary, talent agent and financial institutions, are the main part of intermediaries. They reduce search and other transaction costs for sellers and buyers. Wolpert(2012) [15] considers on intermediary can promote the transmission of information about innovation between enterprises when companies are in the protection of confidential information. Knowledge-Intensive business services (KIBS) are defined as the organizations and enterprises which offer related products and services

for users and society with professional knowledge (Miles, Kastrinos et al., 1995) [9]. Many research notice that the intermediaries play an important role on industry cluster, the new enterprise and the manufacture industry (Zeng, Xie et al., 2010 [17]; Zhang and Li, 2010 [18]). The role of intermediary is emphasized as the knowledge source and bridge in these researches. Bailey and Bakos(1997) [1] raised four important roles as aggregation, trust, facilitation and matching of market intermediaries according to the literature.

In summary, the characteristics of service intermediary included: (a) Intermediary is the bridge between the enterprise and other institutions, such as universities, government and etc.; (b) Intermediary can promote the transmission of information about talents, information, technology and other kinds of information from other institutions. They expand the search scope and reduce search and other transaction costs for the needs of the enterprise. (c) Intermediary plays as the third party role among stakeholders which helps to promote the cooperation relationship between stakeholders and the strengths of enterprises.

With reference to the existing research above, with the deep studies of intermediary, it is definitely that intermediary plays a positive role on enterprise innovation performance. However, the literature has mentioned relatively little about how a service intermediary operates to promote enterprise innovation performance, especially public intermediaries. Mehra(2009) [8] thinks that public intermediaries are public or public like organizations and have an important role in regional innovation system. This paper presents the case study of a public intermediary to do research on the cooperation method between intermediary and enterprise as well as other private intermediaries.

### III. CSTSC - A PUBLIC INTERMEDIARY

China Science & Technology Service Center for SMEs is a public technology transfer organization in China, which is established in July, 2011 under the Committee of Economic and Information in Hangzhou and National Association of the Technology Market. It provides an information platform for the organizations or individuals, who has scientific and technological achievements and for the enterprise, which need such achievements in their transformations and upgrade progress. And it also provides a platform for trading and providing service. It is

playing a very significant role in providing a vital link between research network and industry in the country.

Compared with other early public intermediary, CSTSC moves away from centralized government control and introduces more market-oriented features. Though public intermediaries have good relationship, policy support, all kinds of abundant resource and support service for free, individuals and businesses are more inclined to choose private intermediaries as the inefficiency and helpless of public intermediaries. So the aim of CSTSC is to support high-quality and high-efficiency services for SMEs as king Before CSTSC set up, the founder of CSTSC did further investigation in Beijing, Shanghai, Guangzhou, etc. and learned their new core operations. CSTSC integrates all kinds of resource and cooperates with SMEs and other organizations enduringly on the basis of mutual benefit. CSTSC builds a sustainable development model with professional team, cooperating with industry associations and other private intermediaries. As the first public intermediary with operating mechanism of marketization, CSTSC is investigating a new operating mechanism to play a significant role in innovation system actually. CSTSC's vision is to set up chains all over the country with the new operating mechanism. CSTSC has good operating mechanism and development strategies that they are worth studying.

### IV. BUSINESS MODEL ANALYSIS

The business model concept became prevalent with the advent of the Internet in the mid 1990s. A large number of researches tackle the concept of business models with an ontological approach and provide the basis for new management tools. Osterwalder(2004) [10]

proposes a new business model framework as a business design tool. The business model identifies four main components that contain core value, financial aspects, infrastructure management and customer interface. The research uses this analytical framework to analyze business model of China Science & Technology Service Center for SMEs.

The case study of CSTSC serves as an illustration of the business model ontology. The case study was based on information from research on the Internet, a series of open interviews with executives and employees of the CSTSC. The author resents an overview of the CSTSC's business model as well as a bird's eye view.

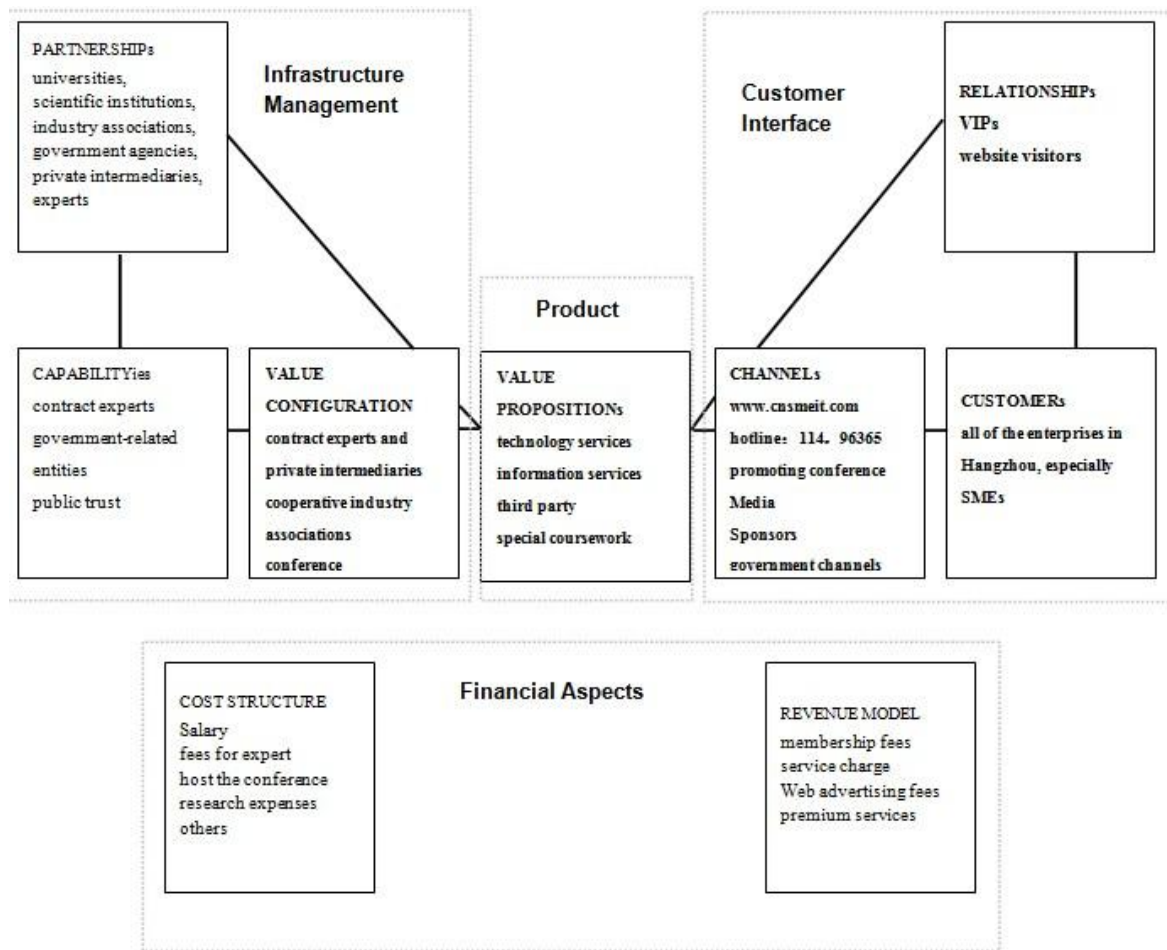


Fig.1. Overview of the CSTSC's business model

#### A. Product

In this section, I show what valuable propositions the CSTSC offers to the market. CSTSC

has three main value propositions that it relies on three core capabilities and addresses one main target customers.

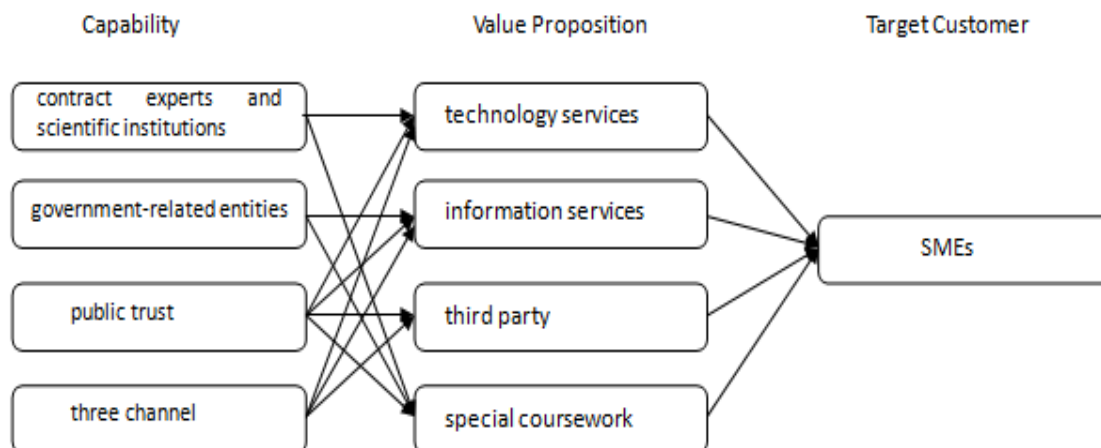


Fig.2. CSTSC's Value Propositions

#### B. Customer Interface

In this section we describe all customer-related issues of the CSTSC's business model. We outline target

customers which it addresses through which channels it does this and we describe what customer relationships it maintains.

CSTSC's three value propositions target one main group of target customers, SMEs. As shown by a previous research, the majority of Chinese SMEs have endeavored to achieve competitiveness through innovation capabilities. Because of the cost constraint and resource constraints, SMEs development is impeded in aspects of technology, market, funds and talents. SMEs need more external help in R&D and innovation activities than large enterprises.

CSTSC offers and markets its value propositions through six different distribution channels, website, hotline, promoting conference, media, sponsors and government channels. CSTSC website plays an important role in the promotion, information diffusion, expert consultation and policy announcement. Promoting conference and government channels are the two special distribution channels. CSTSC handles conference to attract more SMEs to participate and cooperates with them. CSTSC provides opportunities for SMEs to establish mutually beneficial partnerships with scientific institutions, experts and other intermediaries as well. CSTSC is widely known to SMEs by government channels announcing policy.

CSTSC essentially maintains two relational strategies. CSTSC carefully pays attention to its relationships with VIPs. Each VIP has a fixed staff to connect continuously. The other relational strategy is with website visitors. The website visitors might become VIPs one day. So website visitors can do online consultation for free.

### C. Infrastructure Management

In this section we explain what the CSTSC has to dispose of in order to offer its value proposition and maintain its customer interface. We outline the capabilities and value configuration necessities, showing what kind of partnerships CSTSC has entered to support its business model.

In order to make its value propositions possible, CSTSC has to master essentially three capabilities, contract experts and other agencies, government-related entities, public trust. As a public intermediary, CSTSC can contract experts and other agencies easily. Government will support CSTSC as much as possible. But public trust is too difficult to obtain. Public organizations are generally considered as inefficient and troublesome. CSTSC must accomplish work perfectly to build public trust.

The value configuration describes CSTSC's main activities and how they relate to each other. CSTSC basically functions as a value network for it connects SMEs with experts, scientific institutions, private

intermediaries and other organizations. A value network has the three main activity types, which are network promotion and contract management, service provisioning and network infrastructure operation. Accordingly CSTSC's activities can be classified among these three categories.

CSTSC can only take place when it has a strong partner network. The fields of partnering embrace six areas, universities, scientific institutions, industry associations, government agencies, private intermediaries, experts. CSTSC establishes three main and stable channels to make the partner network.

### D. Financial Aspects

This section simply shows how CSTSC makes money. It outlines the organization's revenue model and its cost structure.

CSTSC has two cost structures that cover all the expenses of CSTSC's business models and classifies them among a number of accounts. Direct costs are the main cost structure which contains the fees for expert, host the conference and so on. Running costs contain salary, research expenses and others.

CSTSC plans to have three revenue models in the future. The first, most important one concerns charge for intermediation services and premium services. The second one concerns membership fees. The third one concerns the Web advertising fees.

### E. Summary

The ultimate role of the business model for an innovation is to ensure that core value of the innovation delivers value to the customer. Because general public organizations are in the control of centralized government and in complete bureaucracy, CSTSC turns to market mechanism to achieve long-term development. We offer an interpretation of the business model as a construct that mediates the value creation process. With the new business model, CSTSC firstly changed the relationship with the enterprises: supporting high-quality and high-efficiency services actively substitutes for supporting services freely when requested by SMEs. CSTSC initiatively contacts with SMEs and sets up various channels to facilitate contact with customers. The other core strategy of CSTSC is that it has a better value configuration than previous public intermediaries. CSTSC basically functions as a value network with three main activity types for it connects SMEs with experts, scientific institutions, private intermediaries and other organizations. CSTSC act as not only a third party but also an enterprise to play an important role in the cluster innovation systems.

## V. CONCLUSIONS

As intermediaries emerge, it is predictable that public intermediary will play a significant role in supporting enterprises, especially SMEs in R&D and innovation activities in China. But the development of public intermediary can't ignore the government system with Chinese characteristics. In service economy era, each organization should provide high-quality and high-efficiency services to achieve long-term development, including public organizations. Public intermediaries need a new business model to alter the basis competitive factors. This paper proposes a fundamental business model framework for public intermediaries. The business model shows the appropriate value propositions relying on characteristic infrastructure management for the SMEs. The business model is very useful for those public intermediaries which want to leverage advantage of backwardness. The latecomer public intermediaries should make full use of complementary assets of their strategic partners and attach importance to customers in order to establish a unique value network in emerging economies.

This study has two main limitations, which in turn has implications for future research. Firstly, the research studies on the public intermediary with a cross-section analysis of CSTSC. Despite proposing a new business model of the public intermediary to supporting high-quality and high-efficiency services for SMEs, we need to develop a longitudinal research of CSTSC to validate my proposal. Secondly, we chose the case of public intermediary in Hangzhou because SMEs constitute 99.67% of all enterprises in Zhejiang province and the development of economic is better than others. In other cases, lagging economic development or few support of government will influence the core value of public intermediary. Next, we will do a comparative study with choosing other cases of public intermediaries.

#### ACKNOWLEDGMENT

The paper is supported by International Development Research Center of Canada (Grant No. 106341-001), and National Natural Science Foundation of China (Grant No. 70910107021).

#### REFERENCES

- [1]. J. P. Bailey and Y. Bakos, "An exploratory study of the emerging role of electronic intermediaries." *International Journal of Electronic Commerce*: 7-20, 1997.
- [2]. J. Bessant and H. Rush, "Building bridges for innovation: the role of consultants in technology transfer." *Research Policy* **24**(1): 97-114, 1995.
- [3]. Y. Y. Chen, "The Impact of Intermediaries on SMEs Innovation Performance: based on the Mediation of Organization Learning " Zhejiang University, 2012.
- [4]. A. Hargadon and R. I. Sutton, "Technology brokering and innovation in a product development firm." *Administrative Science Quarterly*: 716-749, 1997.
- [5]. J. Howells, "Intermediation and the role of intermediaries in innovation." *Research Policy* **35**(5): 715-728, 2006.
- [6]. E. Malecki, "Technology and economic development: the dynamics of local, regional, and national change.", 2009.
- [7]. S. Mantel and G. Rosegger, "The role of third-parties in the diffusion of innovations: a survey." *Innovation: Adaptation and Growth. Elsevier, Amsterdam*: 123-134, 1987.
- [8]. K. Mehra, "Role of intermediary organisations in innovation systems: A case from India." *6th Asia Pacific*, 2009.
- [9]. I. Miles and N. Kastrinos, "Knowledge-intensive business services." *EIMS publication*(15), 1995.
- [10]. A. Osterwalder, "The business model ontology: A proposition in a design science approach." *Academic Dissertation, Universite de Lausanne, Ecole des Hautes Etudes Commerciales* **2**, 2004.
- [11]. A. Popp, "'Swamped in information but starved of data': information and intermediaries in clothing supply chains." *Supply Chain Management: An International Journal* **5**(3): 151-161, 2000.
- [12]. M. E. Porter, "Location, competition, and economic development: Local clusters in a global economy." *Economic development quarterly* **14**(1): 15-34, 2000.
- [13]. K. G. Provan and S. E. Human, "Organizational learning and the role of the network broker in small-firm manufacturing networks." *Interfirm Networks: Organization and Industrial Competitiveness. Routledge, London*: 185-207, 1999.
- [14]. R. Stankiewicz, "DIFFUSION OF INDUSTRIAL AUTOMATION IN SWEDEN." *Technological systems and economic performance: The case of factory automation* **5**: 165, 1995.
- [15]. J. D. Wolpert, "Breaking out of the innovation box." *Harvard Business Review* **80**(8): 76, 2002.
- [16]. A. Zaheer and B. McEvily, "Bridging ties: A source of firm heterogeneity in competitive capabilities." *Strategic management journal* **20**(12): 1133, (1999).
- [17]. S. X. Zeng, X. Xie and C. Tam, "Relationship between cooperation networks and innovation performance of SMEs." *Technovation* **30**(3): 181-194, 2010.
- [18]. Y. Zhang and H. Li, "Innovation search of new ventures in a technology cluster: the role of ties with service intermediaries." *Strategic management journal* **31**(1): 88-109, 2010.